

CLAIMS

What is claimed is:

1. A grooving insert comprising:

a clamping portion and at least one cutting portion;

5 top and bottom opposing surfaces;

a peripheral side surface extending between the top and bottom surfaces;

the top surface and peripheral side surfaces meeting at an upper edge, at least a portion of which comprises a cutting edge;

the at least one cutting portion comprising a forward main cutting edge and two opposing
10 side cutting edges extending rearwardly from the forward main cutting edge towards the clamping portion on opposing sides of a center line of the grooving insert; wherein:

each side cutting edge has a serrated form in a top view of the grooving insert.

2. The grooving insert according to Claim 1, wherein

15 the serrated form comprises a plurality of steps, each step comprising three sections, a forward section, a rear section and a corner section therebetween,

the rear section of one step merging with the forward section of an adjacent step, and

the forward main cutting edge merging with a first step of the plurality of steps.

20 3. The grooving insert according to Claim 2, wherein

a first width of cut presented by the forward main cutting edge together with the adjacent forward sections of the first steps belonging to the two opposing side cutting edges, is at least five times a second width of cut presented by the forward section of either of the second steps.

5 4. The grooving insert according to Claim 3, wherein the second width of cut is between 0.05 mm and 0.5 mm.

5. The grooving insert according to Claim 2, wherein the forward section of the first step is rounded.

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6. The grooving insert according to Claim 5, wherein the rounded forward section is a circular arc of a given radius.

7. The grooving insert according to Claim 2, wherein the steps of one side cutting edge are
15 lined up with the steps of the other side cutting edge so that the upper edge has mirror symmetry about a plane passing through the center line, with the steps of the two opposing side cutting edges forming pairs of opposing steps relative to the center line.

8. The grooving insert according to Claim 7, wherein the corner sections of a first of the two
20 opposing side cutting edges lie on a first line and the corner sections of the second of the two opposing side cutting edges lie on a second line.

9. The grooving insert according to Claim 8, wherein the first and second lines converge forwardly to the forward sections of the first step on either side of the forward main cutting edge.

10. The grooving insert according to either Claim 7, wherein the forward section of each step
5 of a given pair of opposing steps, lies on a line of a pair of opposing lines that converge forwardly.

11. The grooving insert according to Claim 10, wherein the rear section of each step of a given pair of opposing steps lies on a line of a pair of opposing lines that converge rearwardly.

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12. The grooving insert according to Claim 7, wherein the rear section of each step of a given pair of opposing steps lies on a line of a pair of opposing lines that converge rearwardly.

13. The grooving insert according to Claim 1, wherein the peripheral side surface comprises
15 at least one end surface and two opposing side surfaces extending rearwardly from the at least one end surface, the at least one end surface meeting the top surface at the forward main cutting edge of the at least one cutting portion.

14. The grooving insert according to Claim 13, wherein each side surface is divided into two
20 side surface portions, an upper side surface portion adjacent the upper edge and a lower side surface portion extending from the upper side surface portion to the bottom surface.

15. The grooving insert according to Claim 14, wherein the shape of the upper side surface portion is similar to the shape of the upper edge in a top view of the grooving insert.

16. The grooving insert according to Claim 1, comprising two cutting portions, one cutting
5 portion located at either end of the grooving insert, along the center line, in a top view of the grooving insert.

17. A grooving insert comprising:

a clamping portion and at least one cutting portion;

10 top and bottom opposing surfaces;

a peripheral side surface extending between the top and bottom surfaces;

the top surface and peripheral side surfaces meeting at an upper edge, at least a portion of
which comprises a cutting edge;

the at least one cutting portion comprising a forward main cutting edge and two opposing
15 side cutting edges extending rearwardly from the forward main cutting edge towards the clamping portion on opposing sides of a center line of the grooving insert; wherein

each side cutting edge comprises a plurality of steps;

each step, after the first step, has a forward section presenting a width of cut in a feed
direction of the grooving insert; and

20 no two of said forward sections lie on the same line, in a top view of the grooving insert.

18. A double-ended grooving insert comprising:

first and second cutting portions arranged at opposite ends of the grooving insert along a center line thereof;

each cutting portion comprising a forward main cutting edge and two opposing side cutting edges extending rearwardly from the forward main cutting edge on opposing sides of the

5 center line; wherein

each side cutting edge comprises a plurality of steps;

each step, after the first step, has a forward section presenting a width of cut in a feed direction of the grooving insert; and

no two of said forward sections lie on the same line, in a top view of the grooving insert.

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